

REMARKS

Claims 1-9 and 20 are pending in the present application. Claims 1 and 6 have been amended, Claim 20 has been added, and Claims 10-19 have been withdrawn from consideration. Reconsideration of the pending claims is respectfully requested.

I. 35 U.S.C. § 102, Anticipation

The Examiner rejected Claims 1 and 5 under 35 U.S.C. § 102(b) as being anticipated by Gray (U.S. Patent No. 6,087,193) (hereinafter "Gray"), or, in the alternative, under 35 U.S.C. § 103(a) as obvious over Gray in view of Hayama (U.S. Patent No. 5,260,595) (hereinafter "Hayama"). This rejection is respectfully traversed.

With respect to Claim 1, Applicants urge that the Examiner has failed to properly establish a prima facie showing of anticipation. For a prior art reference to anticipate in terms of 35 U.S.C. 102, every element of the claimed invention must be identically shown in a single reference. *In re Bond*, 910 F.2d 831, 15 USPQ2d 1566 (Fed. Cir. 1990). In rejecting Claim 1, the Examiner states that Gray's Figure 26 anticipates Claim 1, including "regions 137 and 138" of Gray's Figure 26 reading on the claimed first and second contact regions. Applicants show error, in that Gray's Figure 26 does not include or otherwise depict a region 138, and thus the Examiner's allegations regarding Gray's Figure 26 has failed to properly establish a prima facie showing of anticipation as the Examiner has failed to establish a teaching of the claimed second contact region in combination with the other recited elements in a unitary structure, per Claim 1.

Still further with respect to Claim 1 and Gray's Figure 26, Applicants urge that element 120 shown in Gray's Figure 26 is a FETS DRAIN element, and does not read on the claimed second contact region. Gray's DRAIN element is contact-free such that it can emit electrons to a collector anode by an electron field emitter (column 3, lines 13-44), and thus there would be no reason to form a contact region for an element such as element 120 that is contact-free in order to provide electron emissions. Applicants have amended Claim 1 to further emphasize this distinction. Thus, it is further shown that Claim 1 is not anticipated by the cited reference, as every element of the claimed invention is not identically shown in a single reference.

Still further with respect to Claim 1, to the extent the Examiner is mixing and matching features from Gray's Figure 24 with Figure 26 to create a hybrid device (since Figure 26, which is being used to reject Claim 1 does not contain an element 138, yet Figure 24 does include an element 138), use of such a hybrid creation is improper for a 35 USC 102 rejection. For a prior art reference to anticipate in terms of 35 U.S.C. 102, every element of the claimed invention must be identically shown in a single reference. *In re Bond*, 910 F.2d 831, 15 USPQ2d 1566 (Fed. Cir. 1990) (emphasis added by Applicants). A hybrid *creation* that is not itself shown in the reference does not satisfy this 'identically shown' requirement.

Applicants further urge that the cited reference does not teach the details of a diffusion resistor at all, but rather teaches the details of a voltage controlled current source (column 1, line 62 – column 2, line 16). While Gray does briefly mention a variable resistor at column 6, lines 14-16, the details of the underlying construction of such variable resistor are not described. Thus, it is further shown that Claim 1 is not anticipated by the cited reference, as every element of the claimed invention – specifically a diffusion resistor per the recited elements - is not identically shown in a single reference.

Applicants initially traverse the rejection of Claim 5 for similar reasons to those given above with respect to Claim 1 (of which Claim 5 depends upon). Still further with respect to Claim 5, Applicants show that such claim depends upon Claim 3. Since Claim 3 is not being rejected under 35 USC 102, but rather is being rejected under 35 USC 103, it is error to reject Claim 5 under 35 USC 102 as Claim 5 includes all features recited in Claim 3 (since Claim 5 depends upon Claim 3), and the Examiner has acknowledged that Claim 3 is not anticipated by the cited reference since Claim 3 is being rejected under 35 USC 103. Since Claim 3 is not anticipated by the cited reference, and Claim 5 is dependent upon Claim 3 (and thus includes all features recited in Claim 3), it is shown that Claim 5 is not anticipated by the cited reference at least for the same reasons that Claim 3 is not anticipated by the cited reference. Thus, Claim 5 is shown to have been erroneously rejected under 35 USC 102 as every element of the claimed invention is not identically shown in a single reference.

Therefore, the rejection of Claims 1 and 5 under 35 U.S.C. § 102(b) has been overcome.

II. 35 U.S.C. § 103, Obviousness

A. The Examiner rejected Claims 1 and 5 under 35 U.S.C. § 103(a) as being unpatentable over Gray in view of Hayama. This rejection is respectfully traversed.

Applicants initially traverse the rejection of Claims 1 and 5 under 35 USC 103 for similar reasons to those given above with respect to the 35 USC 102 rejection of Claims 1 and 5, and show that (1) Gray's Figure 26 does not show or otherwise depict or suggest the claimed first *and* second contact regions combined with the other recited elements in a unitary structure, per Claim 1, and (2) Gray's Figure 26 does not teach/suggest a p-type substrate, but rather an insulating substrate (column 8, lines 63-67), per Claim 5 (which depends upon Claim 3).

Still further with respect to Claim 1 (and similarly for Claim 5), Applicants urge that none of the cited references teach or suggest a diffusion resistor that is configured as claimed in Claim 1. The cited Gray reference does not teach a diffusion resistor at all, but instead teaches a voltage-controlled current source that provides a regulated current output dependent upon a control voltage (column 1, line 64 – column 2, line 1). While Gray alludes to a variable resistor, such variable resistor is a separate device which is not a part of the voltage-controlled current source, as can be seen by element 380 in Gray's Figure 14 and 16. The fact that Gray teaches a separate variable resistor 380 which is not described as being configured per Applicants' Claim 1 establishes that Gray did not contemplate or otherwise appreciate a variable resistance diffusion resistor configured per Claim 1. Because Gray taught a separate and distinct variable resistor that was not configured per Claim 1, a person of ordinary skill in the art would not have been motivated to selectively combine certain diffusion resistor teachings of Hayama with the current regulator teachings of Gray, as Gray was concerned with providing a voltage-controlled current source, and was not concerned with the underlying details of how to construct a diffusion resistor. The only reason for somehow modifying Gray to accomplish details of how to construct a diffusion resistor must therefore be coming from Applicants' own patent specification and claims, which is improper hindsight analysis.

Therefore, the rejection of Claims 1 and 5 under 35 U.S.C. § 103(a) has been overcome.

B. The Examiner rejected Claims 3 and 6 under 35 U.S.C. § 103(a) as being unpatentable over Gray (with Hayama above as necessary), in view of Bhatia et al. (U.S. Patent No. 4,426,655) (hereinafter "Bhatia"). This rejection is respectfully traversed.

With respect to Claim 3, Applicants traverse for similar reasons to those given above with respect to Claim 1, and urge that Gray's Figure 26 does not show or otherwise depict or suggest the claimed first *and* second contact regions combined with the other recited elements in a unitary structure.

With respect to Claim 6, Applicants show error in the rejection of such claim as the Examiner cites Gray's elements 140, 150 and 180 (Fig 26) as reading on the claimed first, second and third contacts. As can be seen by Gray's element 180, such element is a silicon dioxide layer used to provide insulation (column 8, lines 24-26). In contrast, Claim 6 recites that the first, second and third contacts are formed using metal layers, which are inherently conductive. A person of ordinary skill in the art, when confronted with the teachings of Gray, would not have been motivated to modify Gray's SiO₂ layer (depicted by cited element 180) to instead use a substituted metal layer, as Gray expressly requires that layer 180 provide insulation, and modifying such layer to be formed of metal would effectively cripple the insulating capabilities of Gray's layer 180 – thereby establishing no motivation to modify Gray in accordance with the claimed invention recited in Claim 6. Thus, it is shown that Claim 6 has been erroneously rejected under 35 USC 103.

Therefore, the rejection of claims 3 and 6 under 35 U.S.C. § 103(a) has been overcome.

C. The Examiner rejected Claim 2 under 35 U.S.C. § 103(a) as being unpatentable over Gray (with Hayama above as necessary), in view of Kluth (U.S. Patent No. 6,521,515) (hereinafter "Kluth"). This rejection is respectfully traversed.

With respect to Claim 2, Applicants initially traverse for similar reasons to those given above with respect to Claim 1, and urge that Gray's Figure 26 does not show or

otherwise depict or suggest the claimed first *and* second contact regions combined with the other recited elements in a unitary structure.

Still further with respect to Claim 2, Applicants urge that a person of ordinary skill in the art would not have been motivated to modify the teachings of Gray to include the claimed feature of "wherein the third contact is connected to the surface by a salicided region". In rejecting Claim 2, the Examiner states that such feature would have been obvious since Kluth discloses such regions for the purpose of defining contact regions with a low resistivity. Applicants show error in such assertion. As stated by the Federal Circuit, "virtually all [inventions] are combinations of old elements." *Environmental Designs, Ltd. v. Union Oil Co.*, 713 F.2d 693, 698, 218 USPQ 865, 870 (Fed. Cir. 1983); *see also Richdel, Inc. v. Sunspool Corp.*, 714 F.2d 1573, 1579-80, 219 USPQ 8, 12 (Fed. Cir. 1983) ("Most, if not all, inventions are combinations and mostly of old elements."). Therefore, an Examiner may often find every element of a claimed invention in the prior art. If identification of each claimed element in the prior art were sufficient to negate patentability, very few patents would ever issue. Furthermore, rejecting patents solely by finding prior art corollaries for the claimed elements would permit an examiner to use the claimed invention itself as a blueprint for piecing together elements in the prior art to defeat the patentability of the claimed invention. Such an approach would be "an illogical and inappropriate process by which to determine patentability." *Sensonics, Inc. v. Aerosonic Corp.*, 81 F.3d 1566, 1570, 38 USPQ2d 1551, 1554 (Fed. Cir. 1996). To prevent the use of hindsight based on the invention to defeat patentability of the invention, this court requires the examiner to show a motivation to combine the references that create the case of obviousness. In other words, the Examiner must show reasons that the skilled artisan, confronted with the same problems as the inventor and with no knowledge of the claimed invention, would select the elements from the cited prior art references for combination in the manner claimed. *In re Rouffet*, 149 F.3d 1350, 47 USPQ 2d 1453 (Fed. Cir. 1998). "[w]hen determining the patentability of a claimed invention which combines two known elements, the question is whether there is something in the prior art as a whole to suggest the desirability, and thus the obviousness, of making the combination." *See In re Beattie*, 974 F.2d 1309, 1311-12, 24 USPQ2d 1040, 1042 (Fed. Cir. 1992) (quoting *Lindemann Maschinenfabrik GmbH v.*

American Hoist & Derrick Co., 730 F.2d 1452, 1462, 221 USPQ 481, 488 (Fed. Cir. 1984)). As Gray does not teach any desire for a low resistivity third contact (Gray's third contact is alleged by the Examiner to be Gray's element 180, as stated in the rejection of Claim 1, which in fact is a silicon dioxide insulator layer exhibiting high resistivity), the only motivation to modify Gray's teachings to include a third contact that is connected to the surface by a salicided region must be coming from Applicants' own patent specification, which is improper hindsight analysis. Thus, Claim 2 is further shown to not be obvious in view of the cited references.

Therefore, the rejection of Claim 2 under 35 U.S.C. § 103(a) has been overcome.

D. The Examiner rejected Claim 4 under 35 U.S.C. § 103(a) as being unpatentable over Gray (with Hayama above as necessary), in view of Racanelli (U.S. Patent No. 5,532,175) (hereinafter "Racanelli"). This rejection is respectfully traversed.

With respect to Claim 4, Applicants initially traverse for similar reasons to those given above with respect to Claim 1, and urge that Gray's Figure 26 does not show or otherwise depict or suggest the claimed first *and* second contact regions combined with the other recited elements in a unitary structure.

Still further with respect to Claim 4, Applicants urge that the Examiner is using improper hindsight analysis in rejecting such claim. The Examiner states that Racanelli teaches numerous advantages of using SOI technology, and therefore use of SOI technology by Gray would have been obvious. This broad-brushed approach to obviousness is shown to not be supported by law. The fact that a prior art device could be modified so as to produce the claimed device is not a basis for an obviousness rejection unless the prior art suggested the desirability of such a modification. *In re Gordon*, 733 F.2d 900, 221 USPQ 1125 (Fed. Cir. 1984). Gray is concerned with providing a voltage-controlled current source. Introducing SOI technology to Gray would have resulted in the introduction of critical transistor threshold voltage considerations (Racanelli column 1, lines 21-34) which are inconsistent with Gray's desire to provide a voltage-controlled current source. Importantly, Gray provides no suggestion of any desire to modify the teachings therein to include a substrate that is an insulator in a silicon-on-insulator substrate. The only desire for such modification must

therefore be coming from Applicants' own patent specification, which is improper hindsight analysis. Therefore, Claim 4 is further shown to have been erroneously rejected under 35 USC 103.

Therefore, the rejection of Claim 4 under 35 U.S.C. § 103(a) has been overcome.

E. The Examiner rejected Claims 8-9 under 35 U.S.C. § 103(a) as being unpatentable over Gray (with Hayama above as necessary), in view of Yu (U.S. Patent Publication No. 2004/0075146) (hereinafter "Yu"). This rejection is respectfully traversed.

With respect to Claims 8-9, Applicants initially traverse for similar reasons to those given above with respect to Claim 1, and urge that Gray's Figure 26 does not show or otherwise depict or suggest the claimed first *and* second contact regions combined with the other recited elements in a unitary structure.

Still further with respect to Claims 8-9, Applicants urge that the cited Yu reference is non-analogous art that describes an ESD protection device using bipolar technology. Bipolar transistors are substantially different from FET devices as taught by Gray, and a person of ordinary skill in the art would not have been motivated to combine teachings from such dissimilar technologies. Thus, it is urged that the only motivation for such combination must be coming from Applicants' own patent specification, which is improper hindsight analysis.

Still further with respect to Claim 8, Applicants urge that none of the cited references teach or suggest *a diffusion region* that contains n-type dopants having a concentration of about $1 \times 10^{15}/\text{cm}^3$. In rejecting Claim 8, the Examiner describes Yu's teachings of contact regions and N-wells, and associated doping concentrations. In contrast, Claim 8 is with respect to diffusion region doping. It is respectfully urged that Yu's teachings of contact region and well doping is not germane to doping concentrations of a diffusion region, as per Claim 8. Thus, the Gray/Yu combination still does not teach or suggest *a diffusion region* that contains n-type dopants having a concentration of about $1 \times 10^{15}/\text{cm}^3$. Therefore, Claim 8 is further shown to have been erroneously rejected.

Even if one were to assume that Yu's N-well concentration levels suggested concentration levels for a diffusion region, Yu expressly states that the concentration

levels of the well region are $1E^{16}$ to $1E^{18}$ a/cm³, which does not teach or otherwise suggest "wherein the diffusion region contains n-type dopants having a concentration of about 1×10^{15} /cm³". Therefore, Claim 8 is still further shown to have been erroneously rejected.

Still further with respect to Claim 9, since the cited Gray reference does not teach or otherwise suggest the claimed second contact region (as described above with respect to Claim 1), there would be no reason or other motivation to modify Gray to include a second contact region that contains n-type dopants having a concentration of about 1×10^{18} /cm³ to about 1×10^{20} /cm³, as expressly recited in Claim 9. The only motivation for including such feature in the teachings of Gray must be coming from Applicants' own patent specification, which is improper hindsight analysis. Therefore, Claim 9 is further shown to have been erroneously rejected.

Therefore, the rejection of Claims 8-9 under 35 U.S.C. § 103(a) has been overcome.

III. Newly Added Claim

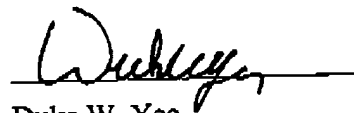
Claim 20 has been added herewith. Specification support for such claim is shown to be at least at page 8, lines 16-24 and Figure 4. Examination of such claim is respectfully requested.

IV. Conclusion

It is respectfully urged that the subject application is patentable over the cited references and is now in condition for allowance. The Examiner is invited to call the undersigned at the below-listed telephone number if in the opinion of the Examiner such a telephone conference would expedite or aid the prosecution and examination of this application.

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Respectfully submitted,



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